

REMARKS

The application has been carefully reviewed on the light of the Office Action mailed on August 8, 2005. Claims 1-9 are pending.

Applicant thanks Examiner Koyama for granting a telephonic interview on October 20, 2005. In the interview, Applicant explained many of the differences between Applicant's claimed invention and the cited prior art. Applicant also noted that the current rejections have the same underlying problems as the rejections that were recently taken to appeal by Applicant, detailed in Applicant's appeal brief dated May 31, 2005. Specifically, Applicant explained that the cited references still contained no feature capable of detecting the presence of a card or other object outside the card entrance. Examiner was receptive to these arguments, but declined to withdraw the rejections, preferring instead to act on a formal response. Detailed arguments regarding the claim rejections follow.

Claims 1-4 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,824,062 to Hirasawa in view of U.S. Patent No. 5,397,883 to Miyashita. This rejection is respectfully traversed.

Claims 1 and 8 recite, *inter alia*, "an ultrasonic wave sensor for detecting whether a card is present outside the card entrance when the card is discharged ...".

Hirasawa does not show any sensor capable of detecting whether a card is present outside the card entrance when the card is discharged. The Office Action identifies a *magnetic* sensor (pre-head 515) for detecting the insertion of a card. The Office Action artificially defines shutter 502 as a card entrance, but the card entrance is clearly defined in the specification as "card entrance 516" at col. 22, line 66. Shutter 502, on the other hand, is an internal mechanism, as shown in Fig. 30. Defining the internal

shutter 502 as a card entrance is inconsistent with the explicit identification of card entrance 516 in the specification, and with the common meaning of the term "card entrance" within the art.

Thus, although the pre-head 515 is capable of detecting the presence of a card inside the card reader, the pre-head 515 is not a "sensor for detecting whether a card is present *outside* the card entrance" because its placement inside the card entrance unit 502 makes it incapable of detecting the presence of a card, or anything else, outside the card entrance 516.

Miyashita also fails to show any sensor capable of detecting whether a card is present outside the card entrance when the card is discharged. Sensor 22 is located inside the card reader apparatus 10 and can only detect whether the card, in this case, a magnetic commuter pass, has been ejected. Sensor 22 cannot detect whether the card is present *outside* of slot 16.

The Office Action also identifies proximity sensor 94 as an appropriate sensor for detecting whether a card is present outside the card entrance. However, the proximity sensors 94 are found on a separate antenna section 91, which is used as an alternate and separate means of controlling access through the gate, using a radio commuter pass. The proximity sensors 94 are oriented to detect objects *above* the antenna section 91, and are not capable of detecting whether the magnetic card pass is present outside of either slot 14 or slot 16, both of which are located *below* the plane containing the proximity sensors 94 and are out of the line-of-sight of the proximity sensors 94. Merely replacing the magnetic sensor 22 with a supersonic waves sensor similar to proximity sensor 94 would not solve this problem; there would still be no sensor capable of detecting whether a card is present *outside* the slot 16. Similarly, replacing the pre-head 515 with a supersonic waves sensor 94 of Miyashita would also

not solve the problem; there would still be no sensor capable of detecting whether a card is present *outside* the card entrance 516.

Therefore, neither Hirasawa nor Miyashita, alone or in combination, show all the elements of the claimed invention. Applicant respectfully requests that the rejection of claims 1-4 and 8 be withdrawn and the claims passed to issue.

Claims 5-7 and 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hirasawa in view of Miyashita, and further in view of . This rejection is respectfully traversed.

Claim 5 recites "an ultrasonic wave sensor comprising a transmitter to transmit ultrasonic waves outside the card entrance and a receiver to receive reflected waves of ultrasonic waves from a body when the body is present at the card entrance."

Neither Hirasawa nor Miyashita, alone or in combination, show an ultrasonic wave sensor comprising a transmitter to transmit ultrasonic waves outside the card entrance and a receiver to receive reflected waves of ultrasonic waves from a body when the body is present at the card entrance. Hirasawa does not disclose any sensor for detecting whether a body is present at the card entrance, and does not disclose an ultrasonic sensor of any kind.

Miyashita fails to disclose an ultrasonic wave sensor that is capable of transmitting ultrasonic waves outside the card entrance or receiving reflected waves from a body present at the card entrance. As discussed above, Miyashita discloses, at best, proximity sensors 94 which are located on a separate antenna section 91 and are intended as an alternate means of controlling access through a radio commuter pass. The proximity sensors 94 are oriented to detect objects *above* the antenna section 91, and

are not capable of detecting whether the magnetic card pass is present outside of either slot 14 or slot 16, both of which are located *below* the plane containing the proximity sensors 94 and are out of the line-of-sight of the proximity sensors 94. Therefore, neither Hirasawa nor Miyashita, alone or in combination, show all the elements of the claimed invention.

Okano does not cure these deficiencies. Okano discloses an arrangement for preventing mutual interference between two neighboring ultrasonic sensors, for example, in a parking garage. Okano does not teach or suggest a card reader having "an ultrasonic wave sensor for detecting whether a card is present outside the card entrance when the card is discharged." Okano contains no disclosure related to how an ultrasonic sensor can be employed in a card reader to determine if a card has been properly discharged outside the card entrance or improperly captured.

Claim 6 recites a card reader including, *inter alia*, "a sensor for detecting whether an object is present outside the card entrance." The sensor detects "whether a foreign body is present as said object at a time of standby for card processing and stores a reference value." The sensor also detects "whether the card is present as said object when the card conveyance mechanism discharges the card by comparing a discharge value to said reference value."

The deficiencies of Hirasawa, Miyashita and Okano have been discussed above. None of the cited references to Hirasawa, Miyashita and Okano, taken alone or together, provide any teaching or suggestion of a card reader having a sensor that detects an object at a time of card processing standby, stores a reference value, and detects whether the card is present *outside* the card entrance upon discharge by comparing a discharge value to said reference value. Claim 6 is patentable over the cited references to Hirasawa, Miyashita and Okano.


Claim 9 recites a card reader including, *inter alia*, "an ultrasonic wave sensor for detecting whether [a] card is present outside [a] card entrance when the card is discharged by [a] card conveyance mechanism, said ultrasonic wave sensor comprises a transmitter for transmitting an ultrasonic signal, a receiver for receiving a reflection signal of said ultrasonic signal, a reference duration memory and an ultrasonic wave sensor signal processing circuit which uses said reflection signal and information in said memory to determine if said card is outside said card entrance."

The deficiencies of Hirasawa, Miyashita and Okano have been discussed above. None of the cited references to Hirasawa, Miyashita and Okano, taken alone or together, provide any teaching or suggestion of the above limitations. Claim 9 is patentable over the cited references to Hirasawa, Miyashita and Okano.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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